

DEAFY

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8 July 1963

LABRANG AREA

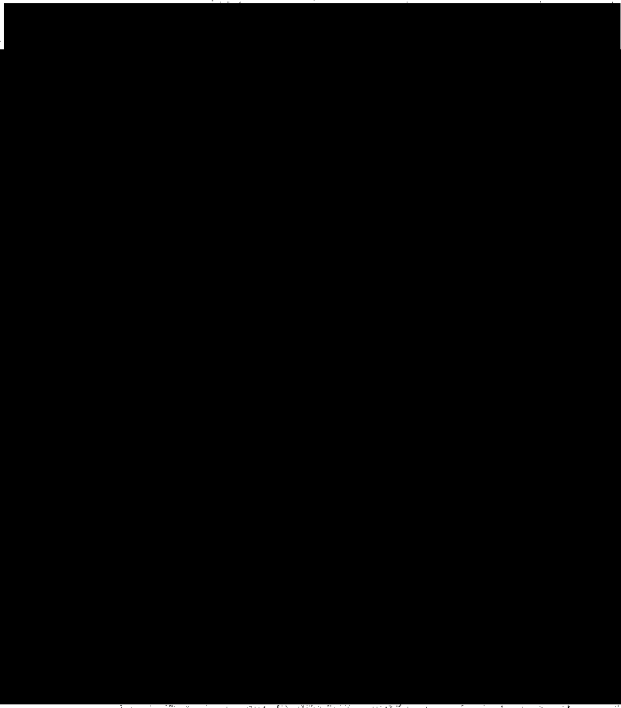
I. Terrain and Vegetation

The terrain in the area around the monastery of Labrang and the neighboring town of Hsie-ho consists of mountains, high dissected plateaus, rounded hills, valleys, and small plains. Labrang itself is located in the flat, quite broad Sang Chu valley at an elevation of 9,500 feet; the surrounding hills and mountains rise to heights of 11,000 to 13,000 feet. The Sang Chu flows through the valley bottom in an easterly direction fed at regular intervals by lateral mountain streams until it reaches its junction with the Ta-hsie Ho approximately 20 miles east of Labrang. Cultivated terraces cover the gentler slopes of the valley and its tributaries. To the north of the valley behind Labrang is the barren, loess-eroded Kelawat plateau. Mountains composed of red sandstone and deeply eroded loess hills enclose the valley to the south. West of Labrang the Sang Chu valley constricts to a narrow opening between two flanking mountain spurs. Beyond this defile the valley widens again to form a broad undulating plain. Formerly a marsh or bog in the winter parts of the year, the valley at this point is being cultivated on a large scale under the direction of what appears to be a state-operated farm.

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The indigenous flora does not represent a wide range of species; although precipitation is adequate, the short summers and cold temperatures combined with a year-round strong, gusty wind prevent the development of a varied flora. Vegetation is primarily alpine; berberis are widespread and potentilla bushes are fairly common. With the exception of a coniferous stand of spruce on the north-facing slope opposite Labrang, there are no forests in the area -- only grasslands with occasional patches of scrub and low conifers in protected valleys and on northern slopes, especially in the hills south of the Sang Chu valley. Many of the hills and mountains are bare with little or no vegetation.



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Settlement patterns in the area represent a mixture of Chinese, Tibetan, Mohammedan, and Mongol types. In addition to the main lamasery of Labrang, several small outlying Tibetan Buddhist monasteries are encountered on the slopes along the Sang Chu valley. The Chinese usually are found clustered in villages along the main valley pursuing agricultural and commercial interests. Hsia-ho is predominantly a Chinese settlement, as undoubtedly is

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the state-operated farm in the valley west of Labrang. A number of nomad encampments are scattered on the hills on the perimeter of the cultivated area of the farm. It is probable that these encampments and the associated herds are controlled by the farm management. Three types of nomads are found in the Labrang area: Tibetans can be identified by their typically black yak-hair tents resembling giant spiders squatting on the turf; Mohammedans can be distinguished by their round felt yurts; Mongol Buddhists are also encountered in the neighborhood. The inhospitable mountainous areas to the north and south of the Sang Chu valley contain few permanent settlements and are sparsely populated by nomadic types.

II. Climate

The climate in the Labrang area can be characterized, in general, as cold, raw, windy, and dusty. Statistics for the area, other than scattered explorers' observations, are not available; however, fairly reliable records from three weather stations located at comparable elevations in the same general vicinity offer indications of conditions around Labrang. Data for the three stations were taken from a Chinese Communist climatological atlas published in 1960.

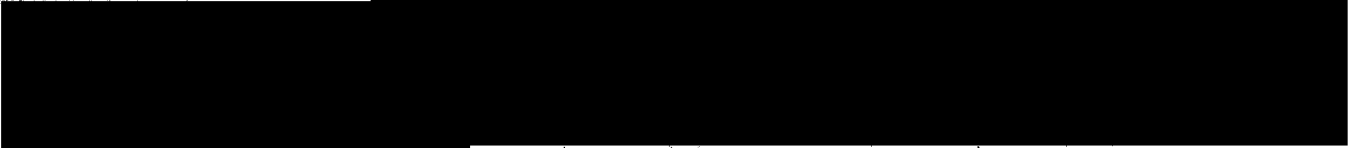
Temperatures vary both annually and diurnally. Monthly temperatures that average below freezing are experienced during the months of November through February and can occur as late as May and as early as September. A noticeable warming trend begins in late March and early April reaching a peak of 60°-65°F. in July and August dropping off sharply in mid-October. Extreme minimum temperatures that average -10°F. may be expected in December and January; conversely, monthly averages above freezing have been recorded

in the same period. Diurnal temperatures, particularly during the summer months, range from cold to chilly at night to uncomfortably hot in the bright sunlight of midday.



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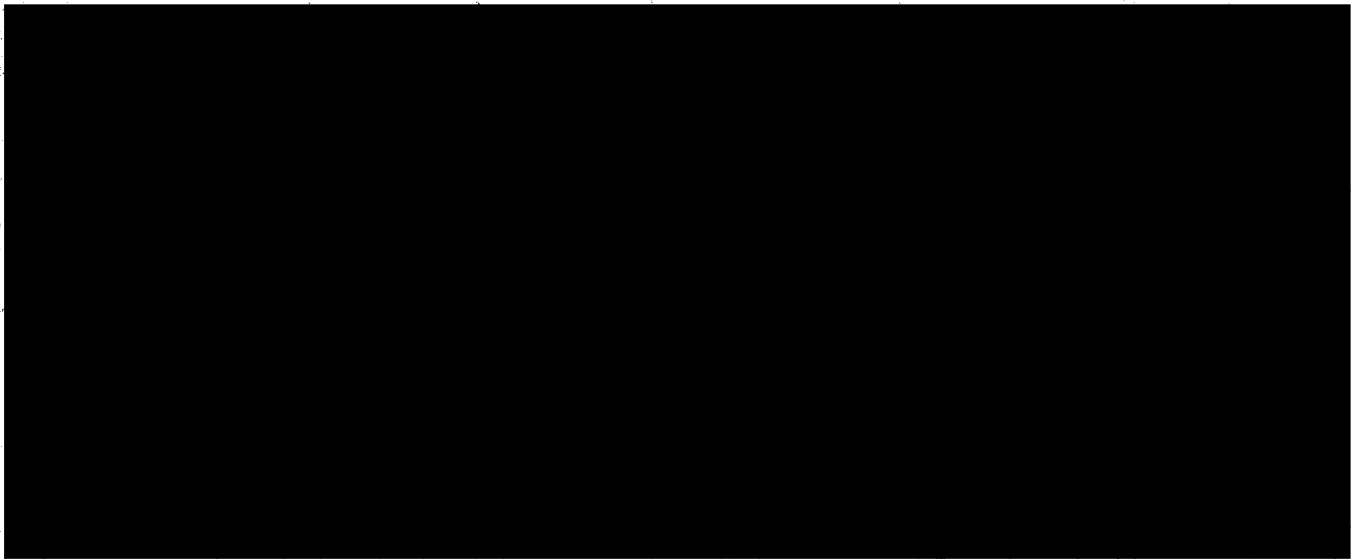
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Precipitation is concentrated in the summer months, usually in the form of afternoon thunder showers, reaching an average total of three and four inches for the months of July and August, respectively, although some rain or snow is recorded in each month of the year. Accompanying the heavier summer rainfall is a greater amount of cloud cover than is encountered in the winter. Damaging hailstorms are not uncommon in the late summer and early autumn.

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Prevailing winds from the north and northwest, having blown across barren and waterless wastes, arrive strong, gusty, and desiccating. In winter the piercing winds add to the discomfort of the low temperatures. The dust-laden desert winds are also responsible for depositing layer after layer of wind-blown particles on the loess-covered hills.



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SELECTED CLIMATIC STATISTICS FOR HSI-NING,
MIN HSIEN, AND HUA-CHIA-LING*

Mean Monthly Temperatures (°F.)

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | 20 | 27 | 37 | 47 | 56 | 60 | 65 | 64 | 55 | 46 | 32 | 22 |
| Hua-chia-ling | 18 | 22 | 31 | 42 | 50 | 56 | 62 | 62 | 60 | 39 | 31 | 20 |
| Min Hsien | 27 | 30 | 39 | 47 | 54 | 59 | 64 | 64 | 56 | 47 | 37 | 27 |

Periods of record -- Hsi-ning 3 years, Hua-chia-ling 5 years,
Min Hsien 12 years

Mean Maximum Temperatures (°F.)

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | 34 | 42 | 50 | 61 | 69 | 73 | 77 | 75 | 65 | 53 | 46 | 33 |
| Hua-chia-ling | 25 | 30 | 40 | 50 | 60 | 65 | 68 | 66 | 57 | 46 | 38 | 27 |
| Min Hsien | 41 | 43 | 51 | 59 | 67 | 74 | 75 | 74 | 65 | 57 | 43 | 41 |

Periods of record -- Hsi-ning 8 years, Hua-chia-ling 5 years,
Min Hsien 12 years

Mean Minimum Temperatures (°F.)

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | 7 | 14 | 24 | 34 | 42 | 49 | 54 | 54 | 46 | 36 | 21 | 10 |
| Hua-chia-ling | 11 | 13 | 22 | 33 | 41 | 49 | 53 | 51 | 44 | 33 | 23 | 11 |
| Min Hsien | 14 | 18 | 28 | 36 | 43 | 49 | 54 | 54 | 48 | 39 | 26 | 15 |

Periods of record -- Hsi-ning 8 years, Hua-chia-ling 5 years,
Min Hsien 12 years

* Hsi-ning 36°35'N., 101°55'E., altitude 7,360.93 feet; Hua-chia-ling 35°25'N., 104°50'E., altitude 8,024.19 feet; Min Hsien 34°30'N., 104°05'E., altitude approx. 8,024.19 feet.

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Extreme Minimum Temperatures (°F.)

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | -10 | -3 | 8 | 12 | 23 | 37 | 43 | 42 | 32 | 20 | -2 | -9 |
| Hua-chia-ling | -10 | -9 | 5 | 4 | 21 | 27 | 24 | 27 | 31 | 22 | 2 | -11 |
| Min Hsien | -1 | 0 | 9 | 13 | 30 | 29 | 21 | 25 | 31 | 25 | 8 | -3 |

Periods of record -- Hsi-ning 19 years, Hua-chia-ling 7 years,
Min Hsien 13 years

Number of Days Average Temperature Below Freezing

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | 31 | 24 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 31 |
| Hua-chia-ling | 30 | 26 | 17 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 16 | 30 |
| Min Hsien | 29 | 17 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 27 |

Periods of record -- Hsi-ning 16 years, Hua-chia-ling 10 years,
Min Hsien 17 years

Amount of Precipitation (Inches)

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> | <u>Total</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|
| Hsi-ning | .04 | .07 | .21 | .72 | 1.32 | 1.80 | 2.36 | 3.62 | 2.91 | 1.06 | .16 | .06 | 14.83 |
| Hua-chia-ling | .27 | .36 | .43 | 1.59 | 2.35 | 3.32 | 3.54 | 3.56 | 3.00 | 1.39 | .45 | .21 | 20.47 |
| Min Hsien | .09 | .24 | .65 | 1.61 | 3.09 | 3.11 | 5.34 | 4.01 | 3.55 | 1.80 | .24 | .05 | 23.78 |

Periods of record -- Hsi-ning 8 years, Hua-chia-ling 5 years,
Min Hsien 14 years

Average Number of Days With Over 0.1 Millimeter of Precipitation

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | 2 | 2 | 3 | 4 | 8 | 12 | 12 | 12 | 12 | 8 | 2 | 1 |
| Hua-chia-ling | 4 | 4 | 5 | 10 | 8 | 11 | 14 | 11 | 14 | 12 | 5 | 4 |
| Min Hsien | 2 | 4 | 7 | 11 | 13 | 14 | 16 | 13 | 15 | 12 | 4 | 1 |

Periods of record -- Hsi-ning 8 years, Hua-chia-ling 5 years,
Min Hsien 13 years

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Maximum Snow Accumulation (Inches)

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | .78 | .78 | 1.77 | .78 | .39 | 0 | 0 | 0 | 0 | T | .78 | 1.06 |
| Hua-chia-ling | 3.54 | 3.15 | 2.40 | 4.45 | T | 0 | 0 | 0 | 0 | 2.76 | 3.15 | 3.94 |
| Min Hsien | 1.57 | 1.57 | 2.36 | 1.57 | 1.57 | 0 | 0 | 0 | 0 | 0 | 2.91 | 1.97 |

Periods of record -- Hsi-ning 3 years, Hua-chia-ling 4 years,
Min Hsien 4 years

Average Number of Days of Snow Accumulation*

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | 6 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 |
| Hua-chia-ling | 13 | 13 | 8 | 5 | 1 | 0 | 0 | 0 | 0 | 4 | 7 | 10 |
| Min Hsien | 6 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 3 |

Periods of record -- Hsi-ning 17 years, Hua-chia-ling 9 years,
Min Hsien 4 years

Average Number of Clear Days**

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | 15 | 8 | 7 | 6 | 6 | 4 | 6 | 7 | 5 | 10 | 14 | 14 |
| Hua-chia-ling | 13 | 4 | 5 | 3 | 5 | 6 | 4 | 5 | 3 | 6 | 8 | 13 |
| Min Hsien | 10 | 5 | 4 | 4 | 5 | 4 | 5 | 5 | 3 | 6 | 10 | 13 |

Periods of record -- Hsi-ning 9 years, Hua-chia-ling 3 years,
Min Hsien 13 years

Average Number of Cloudy Days***

| | <u>J</u> | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Hsi-ning | 3 | 6 | 11 | 10 | 10 | 11 | 13 | 12 | 13 | 9 | 4 | 3 |
| Hua-chia-ling | 4 | 9 | 13 | 9 | 12 | 11 | 14 | 11 | 12 | 16 | 10 | 5 |
| Min Hsien | 7 | 10 | 14 | 14 | 14 | 15 | 15 | 12 | 16 | 17 | 9 | 5 |

Periods of record -- Hsi-ning 9 years, Hua-chia-ling 3 years,
Min Hsien 13 years

- * The number of days of snow accumulation is the number of days within a certain period of time during which more than half of the ground in the vicinity of the meteorological station is covered by snow.
- ** Average cloudiness less than equal to 2.9.
- *** Average cloudiness greater than or equal to 3.0.

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